



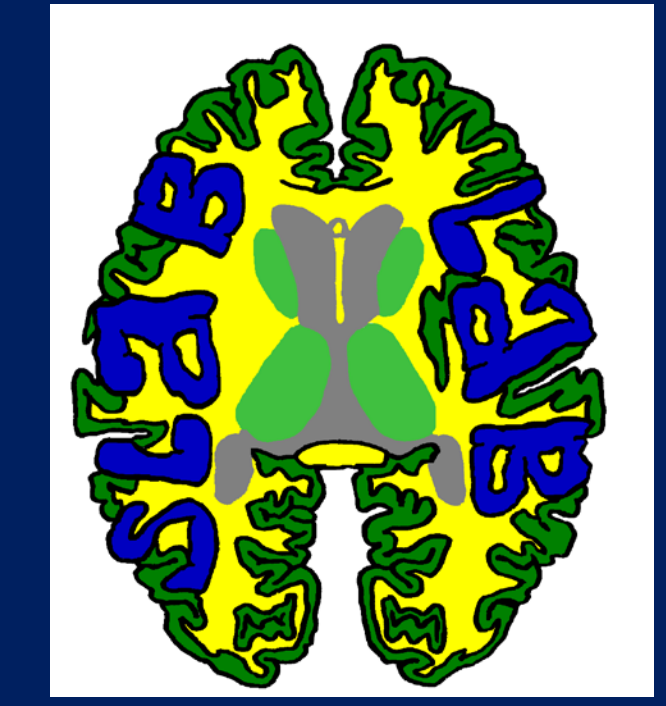
Crosslinguistic Differences in a Picture Description Task between Korean and English Speaking Individuals with Aphasia



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Introduction

➤ Profiles of language impairment in people with aphasia may vary as a function of cross-linguistic differences.

➤ Noun-Verb Dissociation in people with aphasia

- Studies of English-speaking people with aphasia suggest there are differential deficits in verb and noun retrieval between aphasia types (e.g., Druks, 2002).
 - People with agrammatic Broca's aphasia produce more nouns than verbs (e.g., Kim & Thompson, 2000; Zingeser & Berndt, 1990)
 - Noun:verb ratio is greater in people with Broca's aphasia than people with Anomic aphasia (but cf. Miceli et al., 1988)
- Is the noun-verb dissociation a core feature of aphasia, or is it language specific?
 - No studies investigated the noun-verb dissociation in a verb-salient language such as Korean

➤ Korean speakers are less likely to omit verbs than English speakers

- Korean is a verb-salient language
 - Canonical word order is Subject-Object-Verb
 - Verb arguments are often deleted
 - Verbs alone can form a complete sentence if arguments are realized in the discourse context
- Evidence from child language acquisition
 - Korean children had a larger inventory of verbs in their lexicon than children acquiring English (e.g., Choi, 1998).
 - Korean, but not English, children showed a rapid increase in verb acquisition before a noun spurt (Gopnik & Choi, 1995).

Participants

➤ Non-brain damaged control group

- 10 Korean speakers & 10 English speakers

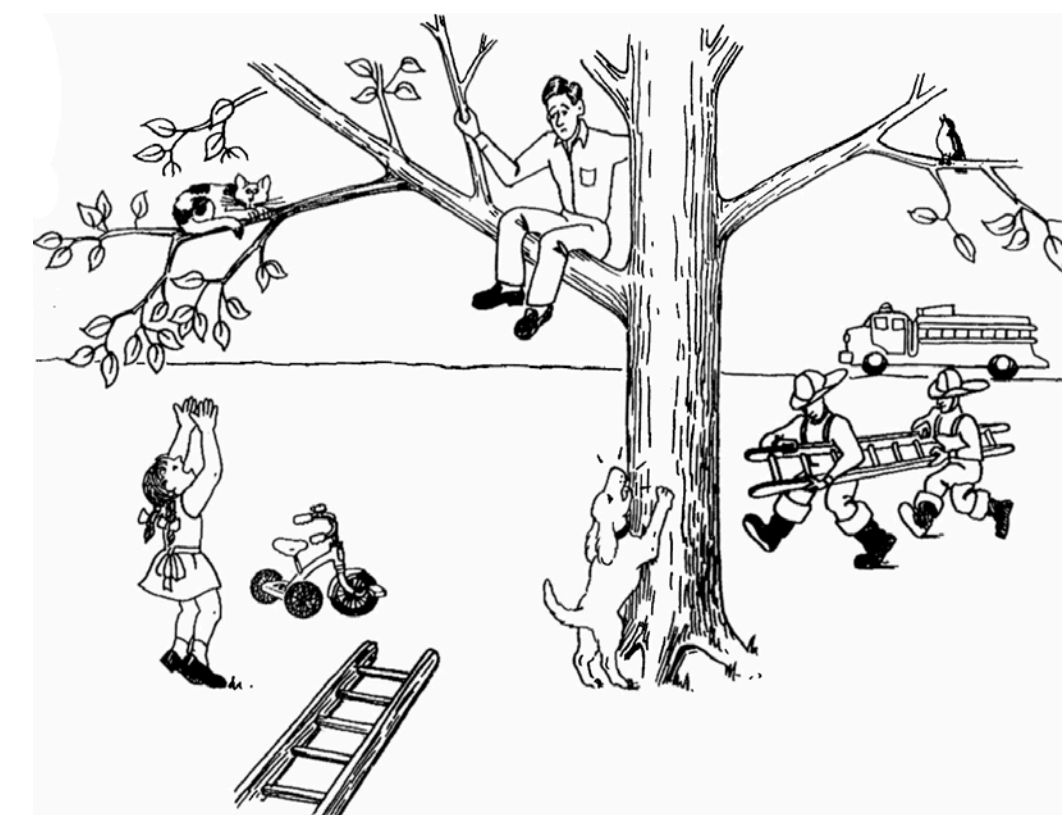
➤ People with Aphasia

- Korean Speakers (n=14; Broca=7; Anomic=7)
 - Korean-Western Aphasia Battery (K-WAB) (Kim & Na, 2001)
 - A single, left hemisphere stroke
- English Speakers (n=14; Broca=7; Anomic=7)
 - Data from Aphasia Bank (MacWhinney et al., 2011)
 - Matched to Korean speakers by Aphasia Type and Severity (WAB AQ)

	Aphasia Quotient		Fluency		Repetition		Naming		Comprehension	
	Eng	Kor	Eng	Kor	Eng	Kor	Eng	Kor	Eng	Kor
Anomic	85.7 (6.4)	86.4 (5.2)	7.2 (1.7)	7.1 (1.5)	8.7 (1.0)	9.2 (0.7)	8.8 (0.6)	9.0 (0.7)	9.9 (0.1)	9.9 (0.3)
Broca	50.6 (8.5)	47.8 (9.9)	3.3 (1.0)	3.6 (0.8)	4.4 (1.9)	4.2 (1.9)	4.6 (1.6)	4.6 (2.1)	7.0 (1.9)	5.7 (2.1)
Average	66.8 (19.6)	68.4 (21.3)	5.1 (2.4)	5.5 (2.2)	6.4 (2.7)	6.8 (2.9)	6.5 (2.5)	6.9 (2.7)	8.3 (2.0)	7.9 (2.6)

Stimuli: Picture Description

Instructions: "Here is another picture. Look at everything that's happening and then tell me a story about what you see. Tell me the story with a beginning, a middle, and an end."



Results

➤ Non-brain damaged control group (Korean vs. English) MANOVA

- Significant effect of language group, Wilks' $\lambda=.01$, $F(13, 6)=78.3$, $p<.0001$, $\eta^2_p=.99$
 - English speakers produced more **utterances** and more **nouns** than Korean speakers
 - Korean speakers produced more **verbs per utterance** than English speakers

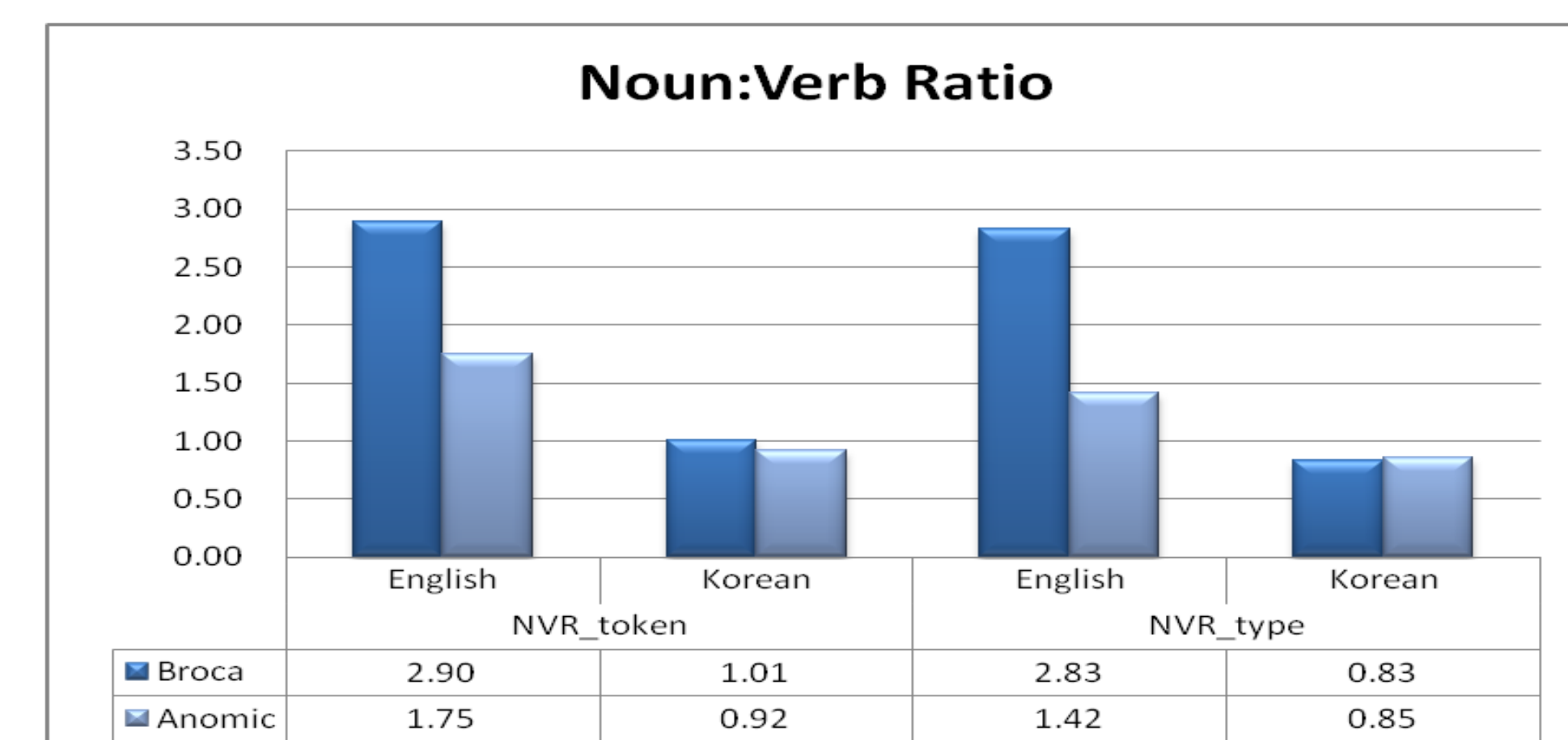
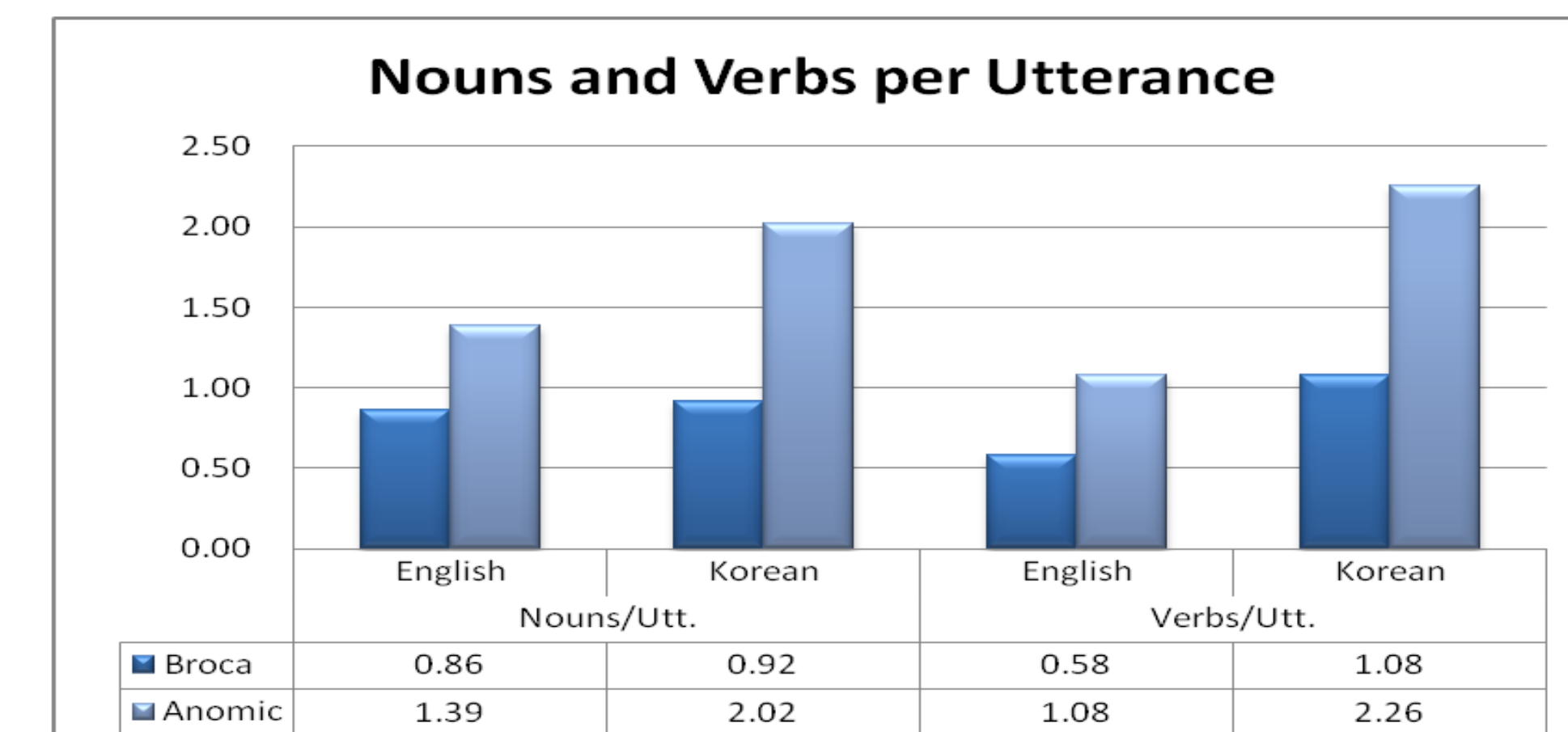
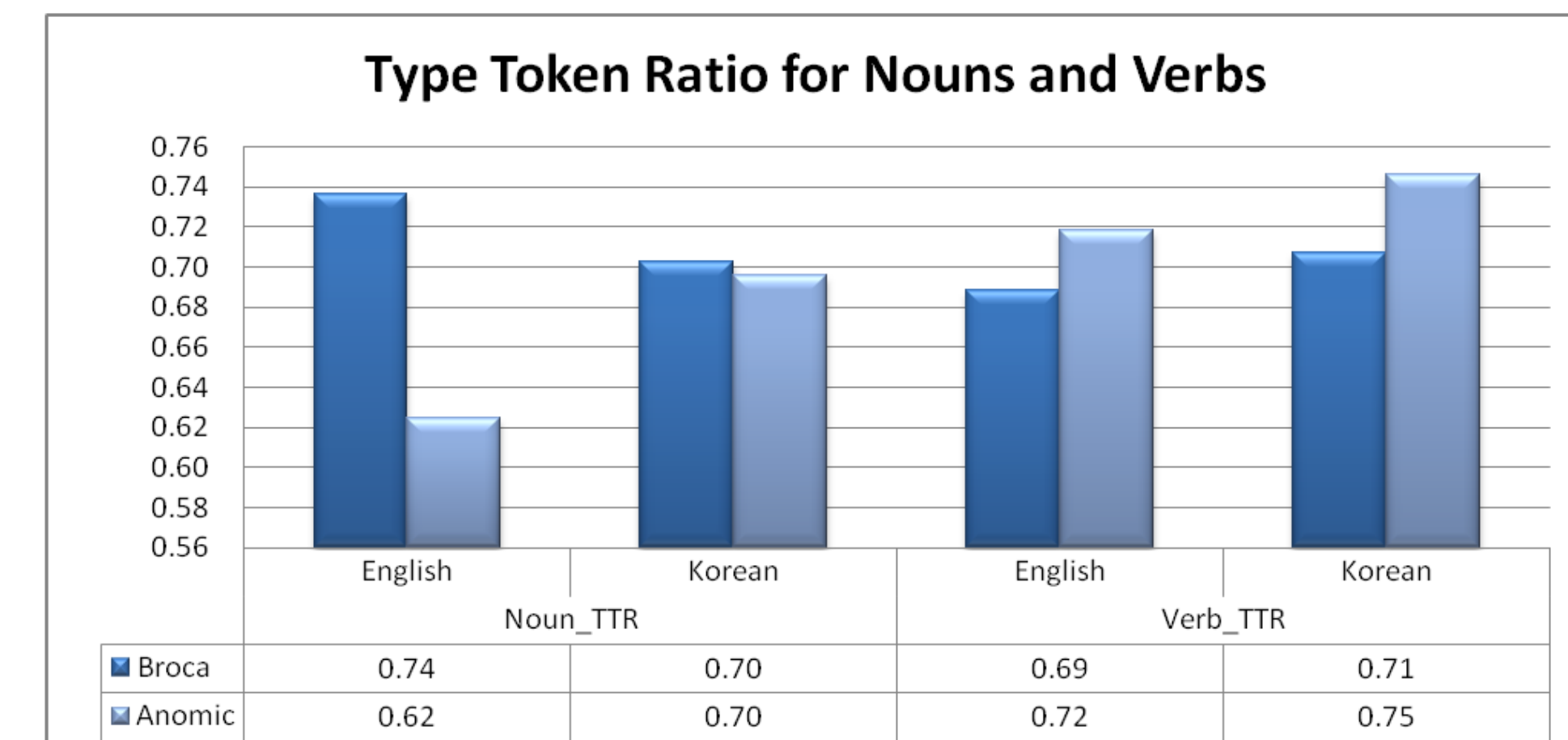
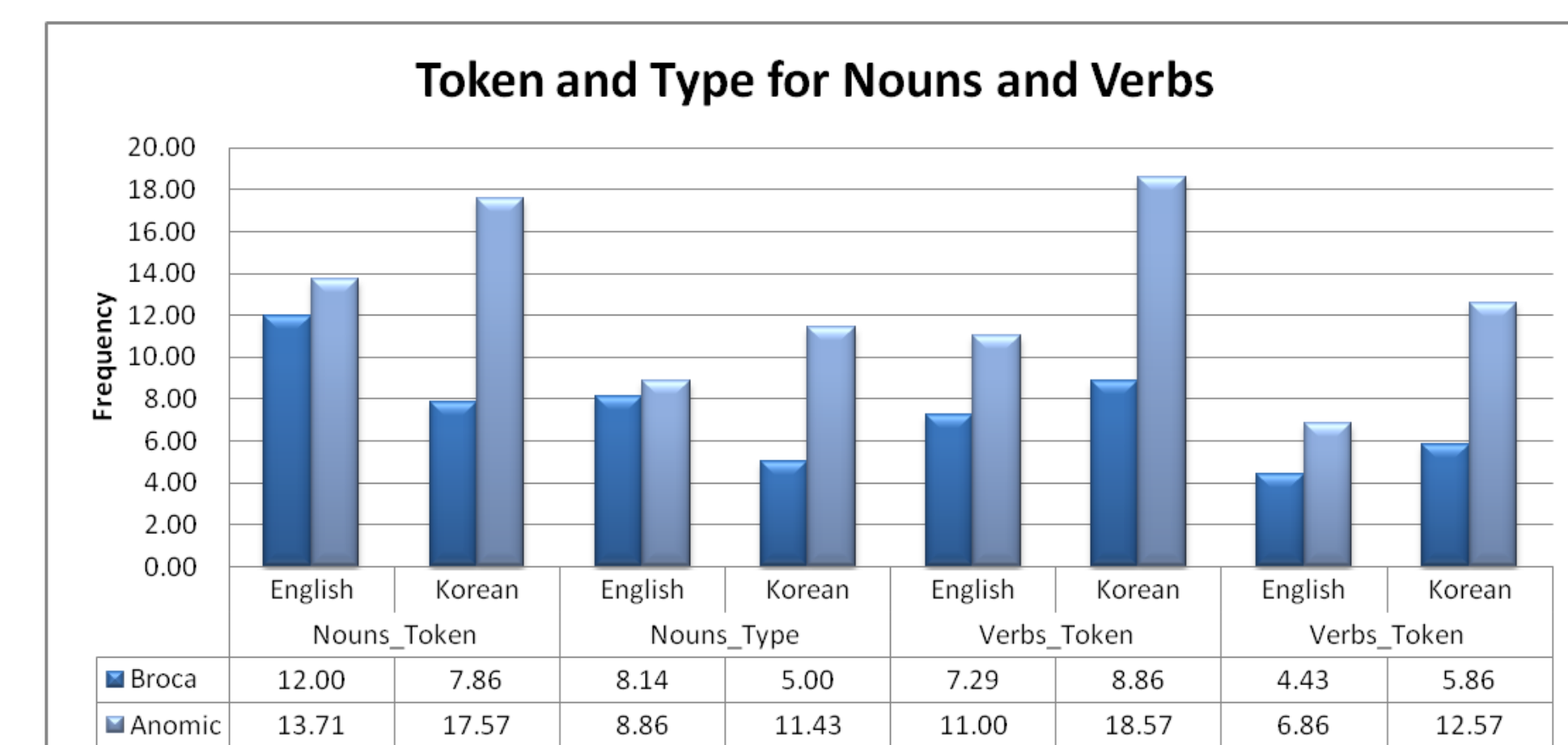
Linguistic Variables	English Speakers		Korean Speakers		P-Value
	Mean	Stdev	Mean	Stdev	
Nouns - Token	39.10	13.14	13.10	3.81	0.00
Nouns - Type	22.20	4.10	9.40	2.22	0.00
Verbs - Token	19.40	5.80	16.40	5.34	0.24
Verbs - Type	13.10	3.70	11.90	3.73	0.48
Nouns - TTR	0.59	0.08	0.74	0.12	0.00
Verbs - TTR	0.68	0.09	0.74	0.13	0.29
Utterance	11.50	4.65	6.60	2.22	0.01
Nouns per utterance	2.74	0.66	2.03	0.39	0.01
Verbs per utterance	1.81	0.48	2.51	0.40	0.00
N:V Ratio - Token	2.02	0.30	0.83	0.19	0.00
N:V Ratio - Type	1.74	0.28	0.83	0.23	0.00

Results

➤ Aphasia Group (Anomic vs Broca) X Language Group (Korean vs English) MANOVA

- Language group: Wilks' $\lambda=.21$, $F(13, 12)=3.4$, $p=.02$, $\eta^2_p=.79$
 - Korean speakers produced more **verb types** and **verbs per utterance** than English speakers.
 - English speakers had higher **Noun-to-Verb Ratios** than Korean speakers.
 - Korean speakers with aphasia produced more verbs, and English speakers produced more nouns and pronouns.
- Aphasia group: Wilks' $\lambda=.32$, $F(13, 12)=1.9$, $p=.02$, $\eta^2_p=.68$
 - Trend towards interaction between language group and aphasia group for **verbs per utterance**
 - Difference between Anomic and Broca's aphasia was greater in Korean than English speakers.

Linguistic Variables	P-value			Pattern
	Language Group	Aphasia Type	Interaction	
Nouns - Token	.965	.091	.230	
Nouns - Type	.875	.059	.125	Broca < Anomic
Verbs - Token	.128	.029	.311	Broca < Anomic
Verbs - Type	.013	.002	.121	Korean > English Broca < Anomic
Nouns - TTR	.769	.362	.414	English > Korean
Verbs - TTR	.760	.655	.954	
Utterance	.057	.338	.380	English > Korean
Nouns per utterance	.124	.001	.201	Broca < Anomic
Verbs per utterance	.000	.000	.074	Korean > English Broca < Anomic
N:V Ratio - Token	.054	.364	.441	English > Korean
N:V Ratio - Type	.027	.215	.200	English > Korean



Purpose of the Study

To examine cross linguistic differences in a picture description task between Korean- and English-speaking individuals with Broca's and Anomic aphasia in order to determine whether there is cross linguistic variation in the use of verbs and nouns across language group and aphasia types.

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Discussion

➤ Cross-linguistic differences play an important role in profiles of language impairment

- Korean speakers with aphasia produced more verbs, whereas English speakers with aphasia produced more nouns and pronouns
- Higher noun-to-verb ratios in English vs. Korean speakers with aphasia due to fewer verbs and more nouns in English speakers
- Consistent with control data: Korean controls generated more verbs per utterances than English speakers

➤ Difference between Anomic and Broca's noun:verb ratio was not significant

- Trend observed in English speakers with aphasia.
- Participants selected by aphasia type rather than based on agrammatic symptoms
- Task differences: Picture description vs. story retell vs. confrontation naming

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